

### FUNCTIONAL CO-545

#### Chain Oil Additive Package for Biodegradable Lubricants

#### APPLICATION:

**FUNCTIONAL CO-545** is designed for formulating chain oils in biobased formulations for forestry applications. **FUNCTIONAL CO-545** is also compatible in mineral oils. **FUNCTIONAL CO-545** is a non-hazardous, multifunctional additive package intended for use in this highly specialized application. Biobased chain oils containing **FUNCTIONAL CO-545** are able to provide increased lubricity and protection from rust on a variety of chains, including sharp chains and green chains, used in lumber mill operations.

#### COMPOSITION:

**FUNCTIONAL CO-545** is a combination of antiwear and EP additives, friction modifiers, demulsifiers and rust inhibitors. The formulation does not contain halogenated additives or heavy metals. Combined with an appropriate thickener and tackifier, such as **FUNCTIONAL V-584**, and biobased fluid of suitable viscosity, **FUNCTIONAL CO-545** will be a fully formulated chain oil. **FUNCTIONAL PD-585** is recommended for continuous operation in climates below -20°C.

Typical Properties	
Appearance	Amber liquid
Color (ASTM D1500)	1.5
Odor	Mild
Lbs. per Gallon	8.2
Flash Point	370°F (188°C)
Kinematic Viscosity at 40°C	65 cSt
Sulfur	1.7 wt%
Phosphorous	3.2 wt%
Performance at 2.3 wt% in Canola Oil	
4-ball wear test (ASTM D4172) at 40 kg	0.44 mm
Copper strip (ASTM D130)	1a
Turbine Oil Rust Test (ASTM D665B)	Pass

This Technical Data Sheet and the Safety Data Sheet contain information believed to be accurate and reliable. No warranty is made, however, to information beyond the control of FUNCTIONAL PRODUCTS INC. The engineering and management personnel of the user are responsible for determining the suitability of this or any product for any specific application, and this information is offered to them for that purpose.

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### TREATMENT LEVEL:

The recommended treatment level for **FUNCTIONAL CO-545** is 2.3% by weight in an appropriate biobased fluid such as canola oil. To achieve the higher ISO viscosity grades or to meet the specific ISO grades recommended by equipment manufacturers, a specialized thickener will be necessary. The recommended thickener and tackifier is **FUNCTIONAL V-584** which provides adherence of the oil to the chains. See the recommended starting point formulation for an ISO 46 fluid below.

Please consult with Functional Products for recommendations when mineral oil is used as the base fluid.

### BIOBASED FORMULATION GUIDE: CO-545 ISO 46 Biobased Chain Oil

	Component	Treat Rate (%)
Tackifier and Thickener	Functional V-584	3.6
Pour Point Depressant	Functional PD-585	0.3-1.0
Performance Additive Package	Functional CO-545	2.3
Lubricity Additive (Optional)	Biodegradable Synthetic Ester	5-10
Base Fluid	Canola Oil	Balance

### HANDLING:

Store in a cool, dry area. Review the current Safety Data Sheet before use.

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